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ORIGINAL

ENVIRONMENTAL IMPACT STATEMENT

SUMMARY

NORTH-CENTRAL OCEAN BASIN
REGIONAL WASTEWATER TREATMENT FACILITY
WORCESTER COUNTY, MARYLAND

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

(12)

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SUMMARY

BACKGROUND

Public Law 92-500 authorizes the U. S. Environmental Protection Agency (EPA) to be the administering agency for a major Federal environmental program entitled "Grants for Construction of Treatment Works." Under this program, the EPA Administrator may provide up to 75 percent of the funding for the construction of publicly-owned wastewater treatment facilities to any state, municipality, intermunicipal agency, or interstate agency. Before granting federal funds, the National Environmental Policy Act (NEPA) and Executive Order 11514 requires all federal agencies to prepare Environmental Impact Statements (EIS) on any project which may significantly affect the quality of the environment or may be highly controversial.

On April 30, 1976 the EPA Region III awarded a grant to the Worcester County Sanitary Commission (WCSC) for the preparation of a Draft Facilities Plan for the North Central Ocean Basin (NCOB). George, Miles, and Buhr (GMB), engineering consultants, were contracted by the WCSC to prepare the Draft Facilities Plan. The purpose of the Draft Facilities Plan is to identify the area's current sewerage problems, designate those areas requiring service, evaluate the potential, social, economic, and environmental impacts of various alternative methods for servicing these areas, and recommend the most cost-effective and environmentally beneficial method of providing wastewater facilities to the identified service areas. GMB designated the primary study area to include Ocean City, West Ocean City, U. S. Route 50 to Berlin, Maryland Route 611 corrider to near Maryland Route 376, eastern portion of St. Martin's Neck, the Isle of Wight drainage basin to a line slightly west of Maryland Route 589, and possibly the Town of Berlin. The primary study area is in agreement with the Worcester County Land Use Plan.

EPA's review of the Preliminary Draft Facilities Plan revealed several potential adverse environmental problems. Therefore, on September 28, 1976 EPA Region III issued a Notice of Intent to prepare an EIS on the Draft Facilities Plan for the NCOB. Region III contracted Ecol Sciences, Inc., and preparation of the Draft EIS began on February 8, 1977.

The purpose of this Draft EIS is to encourage public awareness of both the beneficial and adverse environmental, social, and economic impacts that the proposed project might have on Worcester County and to suggest mitigative measures to minimize the adverse effects of the proposed project. The major issues addressed are filling or crossing of wetlands, an outfall route across Assateague Island, the biological, recreational, and aesthetic resources of the area, increased effluent disposal into the Atlantic Ocean, potential inducement of growth, and the proposed project's impact on ground water quality and quantity. Public comments are welcome

and may be submitted as indicated on the forwarding transmittal page. All interested parties are invited to attend the public hearing, which is being held approximately 30 days after the release of this Draft EIS. (See details on transmittal page.)

A Final EIS will be issued in October 1977, and will address all concerns raised during the Draft EIS review. Another 30-day comment period will follow the issuance of the Final EIS, after which, the EPA Regional Administrator will announce his decision concerning a grant award for Worcester County.

DESCRIPTION OF THE APPLICANT'S PROPOSED PROJECT

The Draft Facilities Plan has been approved by the WCSC and was incorporated into the 1975 Comprehensive Plan for Water and Sewerage Systems. The Draft Facilities Plan has also been forwarded to the Maryland Water Resources Administration (WRA) to obtain their necessary approval before EPA's issuance of a grant.

The proposed project, as described in the WCSC Draft Facilities Plan, consists of four major components; expansion of the Ocean City STP, construction of a Mainland STP near West Ocean City, installation of a regional interceptor system, and local wastewater treatment and disposal.

The Ocean City STP would be expanded from a capacity of 12 to 20.5 mgd. EPA recently approved a request to expand and upgrade the existing facility from 9 mgd primary treatment to 12 mgd secondary treatment. The expansion and upgrading is scheduled to be completed by 1980 and will incur capital costs of approximately $12.4 million. Secondary treatment at the facility would be provided by the pure-oxygen modification of the activated sludge process. Effluent from the facility would be disinfected with ozone before being discharged into the Atlantic Ocean through an extension of the existing outfall. Primary sludge from the facility would be incinerated in the existing incinerator. Secondary sludge would be disposed of through land application. The expanded Ocean City STP would receive wastewater from only the Ocean City portion of the North Central Ocean Basin.

A second STP would be constructed on the mainland near West Ocean City. This facility would have a treatment capacity of 8.9 mgd and would provide secondary treatment through the pure-oxygen modification of the activated sludge process. Effluent would be disinfected with ozone and discharged into the Atlantic Ocean through an outfall which would be installed beneath Sinepuxent Bay and the Assateague Island National Seashore Park. Sludge from the facility would be disposed through land application. The 8.9 mgd facility would be constructed in two phases. Phase I (0 to 6 mgd)

would be completed by 1980 and would incur capital costs of approximately $17.9 million. Phase II (6 to 8.9) would be completed by 1985 and would incur capital costs of approximately $5.1 million

The proposed regional wastewater collection system would convey sewage from Berlin, the Route 611 corridor, West Ocean City, Isle of Wight, and the Turville-Jenkin's Neck area to the Mainland STP (Figure S-1).

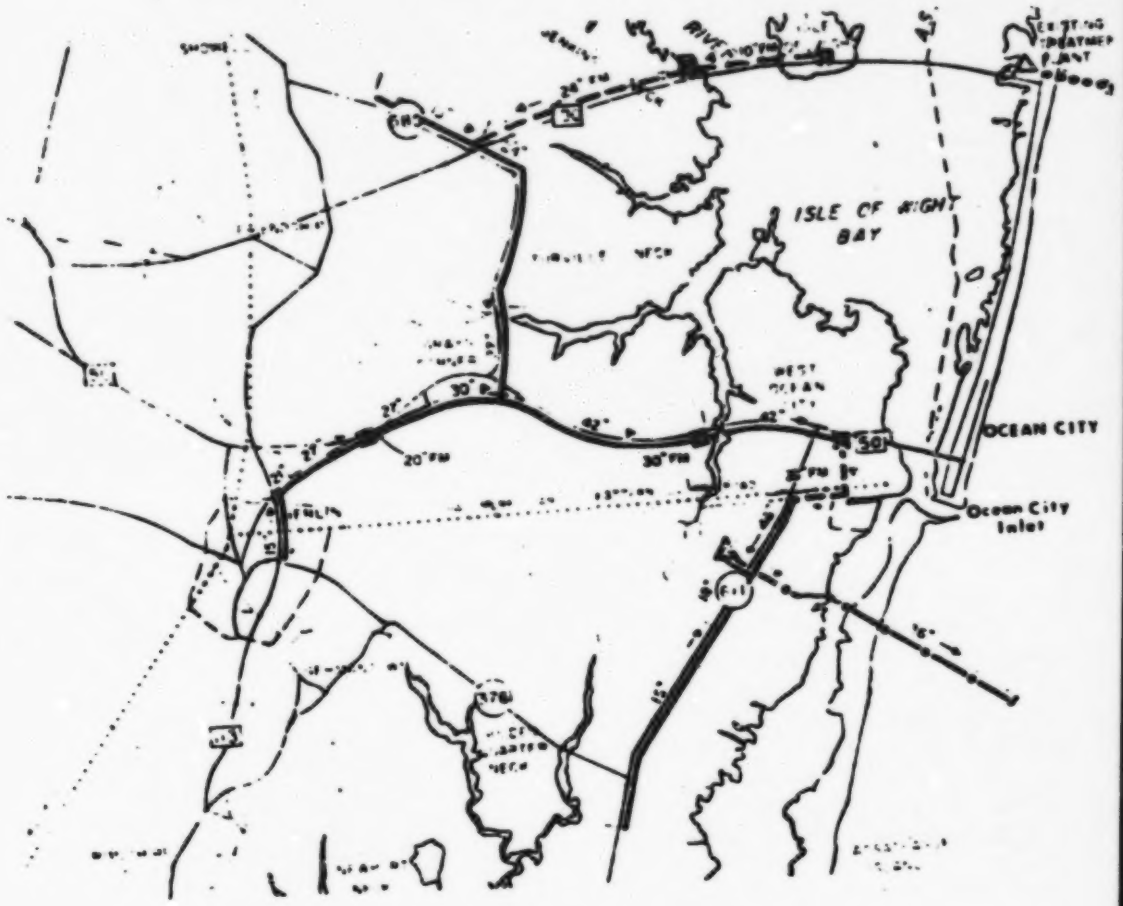

FIGURE S-1. THE PROPOSED REGIONAL WASTEWATER COLLECTION SYSTEM.

All of the collection system, except the Isle of Wight section, would be installed by 1980. The Isle of Wight section would be installed in 1985. Total capital costs for the regional collection system are

approximately $11 million. Local collection systems tributary to the regional interceptors have been designed for West Ocean City and the Route 611 corridor.

The communities of Bishop, Showell, and Bishopville were excluded from the regional collection system and advised to maintain existing individual septic systems. The applicant determined that septic system failures in these communities were generally the result of lack of maintenance and that soils were capable of adequately assimilating domestic wastes. In addition, installing interceptors to these agricultural communities would induce undesired growth. The applicant proposed that the Assateague Island headquarters abandon its discharge to Sinepuxent Bay and install a spray irrigation system for domestic wastes. Major industries were advised to upgrade existing treatment processes or connect with the regional collection system.

PHYSICAL ENVIRONMENT OF THE STUDY AREA

The climate of the North Central Ocean Basin is humid, temperate and is strongly influenced by maritime tropical air masses during the summer and polar air masses during the winter. The average annual air temperature is 56.5°F. The average growing season is 190 days and extends from mid-April to late October. Average annual precipitation is 47 inches and is generally distributed evenly throughout the year. The prevailing wind is from the west to northwest except during the summer when it is southerly. The average wind speed is 8 to 10 miles per hour. Areas immediately on the Atlantic Ocean shoreline (Ocean City) are affected by the land-sea breeze circulation.

The North Central Ocean Basin is included in the Maryland Eastern Shore Intrastate Air Quality Control Region (AQCR). The State of Maryland does not maintain an air-quality monitoring station in the Basin. No significant point sources of air pollutants have been identified. Major line emission sources include the corridors along U.S. Routes 50 and 113 and Maryland Routes 90, 376, 611, and 528.

The study area is underlain by a massive wedge of relatively unconsolidated sand and clay with smaller amounts of gravel. The thickness of this wedge ranges from one mile to more than a mile and a half beneath the North-Central Ocean Basin. Fresh groundwater is generally restricted to the uppermost 450 feet of these sediments and occurs in three aquifers: the Pleistocene, the Pocomoke, and the Ocean-City Manokin. The Pleistocene aquifer provides water for most of the domestic wells in northeastern Worcester County and is the principal water supply for the Town of Berlin. The aquifer is recharged primarily by direct precipitation. Water loss occurs principally through stream discharge, evaporation, and recharge of

the underlying Pocomoke aquifer. The Pocomoke aquifer occurs at an average depth of 225 feet below sea level. A portion of the aquifer's recharge area is situated in the northwestern section of the Basin. The Ocean City-Manokin aquifers are hydraulically connected and are the principal water supplies for Ocean City. The Manokin aquifer is recharged from overlying Pleistocene sands in western Wicomico and southeastern Dorchester Counties. Salt water intrusion of the aquifers resulting from water supply withdrawals is confined to the basal section of the Manokin. Intrusion is projected to increase with increasing water supply withdrawals.

The topography of the North Central Ocean Basin is generally flat to gently undulating. The highest elevations, 35 to 40 feet above sea level, are located in the western boundary of the Basin. All streams in the Basin flow toward the coastal bays; Assawoman, Isle of Wight, Sinepuxent, or Newport. The Basin contains ten "Natural Soil Groups" defined by the Maryland Department of State Planning (MDSP). The principal problems associated with development include seasonally high water tables and slow permeability in some areas. The Basin contains approximately 13,000 acres of prime agricultural soils. Approximately 2,200 of these acres are included in the proposed service area, but most of these areas have been developed.

The principal surface water resources of the North Central Ocean Basin include the near-shore Atlantic Ocean and the coastal bays. The coastal bays are typical mid-Atlantic, bar-built estuaries. Circulation and flushing in the bays are restricted by low freshwater inflow and limited exchange with the Atlantic Ocean. Water quality in the bays is deteriorating from pollutant loadings from malfunctioning septic tanks, industrial discharges, and nonpoint source discharges. In response to the increasing eutrophication of the bays, the Maryland Water Resources Administration (WRA) formulated a discharge policy which considers the allocable waste assimilation capacity of the bays to be minimal, and which permits no new direct wastewater discharges and no increases in wasteloads beyond existing discharge permits. Water quality in the near-shore Atlantic Ocean, near the existing Ocean City outfall, is typical of coastal waters. The effect of the existing discharge is not sufficient to create measurable changes in the concentrations of most constituents.

The North Central Ocean Basin and adjacent coastal waters contain a multitude of plant and animal species which are components of an intricate biological system. Major terrestrial communities include the high-energy beaches and barrier dunes bordering the Atlantic Ocean, wetlands, and forest. The principal aquatic habitats include the coastal bays and near-shore Atlantic Ocean. The Basin contains nesting and feeding areas for the Pergrine falcon and the Bald eagle.

Ambient noise is generally low throughout most of the Basin due to the lack of major noise sources.

SOCIAL AND ECONOMIC ENVIRONMENT

The North Central Ocean Basin is principally rural. Two incorporated towns, Berlin and Ocean City, are the Basin's population centers. According to MDSP, the Basin contained approximately 10,000 permanent residents in 1970. However, state and local estimates of the permanent population in Ocean City are substantially different. Ocean City data indicate that the permanent population of the City has increased from 5900 in 1971 to 17,500 in 1976. The major population variations in the Basin result from the seasonal influx of tourists. Approximately 100,000 to 250,000 people visit the Basin during summer weekends and holidays. Both the number of permanent residents and seasonal tourists has increased rapidly during the past decade.

Agricultural, natural, and undeveloped areas occupy most of the North Central Ocean Basin. Residential development has generally clustered along the major highways, and urban development has been restricted to Ocean City. Land Uses in the Basin are summarized below:

Land Use	Acres	Percent
Forest, Wetlands, Open Space	31,673	47.0
Agricultural	25,289	37.5
Urban and Strip Development	2,432	3.6
Commercial	86	0.1
Institutional/Educational	164	0.2
Residential	7,042	10.5
Miscellaneous	685	1.0
	67,371	99.9

Second homes constituted approximately 37 percent of the total housing in Worcester County in 1970. The recent development of condominiums in Ocean City has stimulated second-home development in the Basin.

The three principal components of the North Central Ocean Basin economy are tourism, agriculture, and commercial fishing. The tourist industry contributes between $31 and $68 million annually to the Basin's economy. Agriculture, which is based upon the production of corn, soybeans, and

broilers, contributed approximately $33 million to the Basin's economy in 1969. Commercial fishing is a relatively small but important industry based upon the harvesting of oysters, clams, blue crabs and finfish. In 1973, commercial fishing contributed $2,163,000 to the Basin's economy.

Public services in the North Central Ocean Basin are generally adequate to support the permanent population but are often strained by high seasonal populations. The public services currently being strained are transportation, recreational capacity, water supply, and wastewater treatment. Approximately 33 percent of Ocean City is devoted to streets and parking lots. Even if planned improvements are completed, these facilities wi'l not be capable of supporting more than a 10 percent population increase. Traffic congestion on the major highways serving Ocean City created significant adverse publicity during the early summer of 1977. Major congestion points included U. S. Route 50 at Cambridge, Vienna, and Ken Narrows, and Maryland Route 404 at Denton. The State of Maryland recently proposed that correcting this stiuation would cost approximately $200 million and that construction would not begin before 1982. Boating congestion has become a significant problem in the Ocean City area. Approximately 41,300 boat launchings occurred in the coastal bays during 1974. These areas have minimal remaining boating capacity. The Ocean City beach, a major recreational resource, has a theoretical maximum capacity of 249,000 people. Although accurate figures are not available, beach use is approaching this limit. In recognition of this situation, the Worcester County Comprehensive Plan included a proposal to open the northern portion of Assateague Island for public beach recreation. The aquifers beneath Ocean City are capable of supporting water-supply withdrawals of 15 mgd. A recent water-supply study prepared for Ocean City proposed that 15 mgd could support the projected maximum population of 300,000 persons in the year 2006. The estimated maximum water supply is 5.5 mgd less than the projected maximum sewage flows from Ocean City in the year 2000.

The North Central Ocean Basin contains 19 sites of historic significance. Six of these sites are included in the National Register. Only three of the 19 sites are located in the proposed service area, and none of these sites will be adversely affected by construction and operation of the proposed facilities.

The North Central Ocean Basin contains the following environmentally sensitive areas:

- Assawoman, Isle of Wight, Sinepuxent, and Newport Bays (60,000 acres),
- marshes and wetlands (7600 acres),
- barrier dune/beach systems (1250 acres),
- recharge area of the Pleistocene and Pocomoke aquifers,

- flood plains,
- sites of historic significance (19),
- recreational and open space,
- upland natural areas (17), and
- prime agricultural soils (13,120 acres).

STATUS OF COMPREHENSIVE PLANNING

Planning in the North Central Ocean Basin is conducted by the:

Worcester County Planning Commission (WCPC),
Town of Berlin, and
Town of Ocean City

WCPC adopted a new land use plan in February, 1976. Approval of the County Commissioners is pending. Zoning and subdivision regulations are being revised to compliment the adopted plan. The Ocean City comprehensive plan was adopted in 1969. That plan is currently being revised. Substantial changes in the plan are expected, but current zoning maps and ordinances will not be changed significantly. Berlin's comprehensive plan was revised and adopted in 1974. The present land use plan for the Basin includes the following six land use categories:

Land Use	Acres		Percent
Ocean City	2,351	3.5	
Suburban	14,834		22.0
Rural	16,805	25.0	
Agricultural	23,475	34.8	
Park Land	2,441		3.6
Conservation	7,466	11.1	
	67,372		100.0

Worcester County adopted a zoning ordinance in 1965. During the past 10 years, 67 of 100 requests for rezoning have been approved by the County Commissioners. Most of the requests involved the rezoning of rural areas for other purposes, and most of the rezoned sites are located within the North Central Ocean Basin. The zoning ordinance provides a "conservation district" for the protection and limited utilization of wetlands and stream valleys and "agricultural districts" for the preservation of farm land. Agricultural lands in the Basin are also protected by use-value taxation, and a recent court ruling limiting land uses in areas completely surrounded by farms.

The principal adverse secondary impact of the proposed project is the increased demand for public services and recreational resources. The street system within Ocean City cannot support significant population increases, and the major highways serving the City are severely congested during weekends. The State of Maryland has indicated that relieving the highway congestion will cost approximately $200 million and will not be started before 1982.

Preliminary water supply projections for Ocean City are in conflict with the wastewater flow projections provided by the applicant. Currently envisioned improvements to the water supply system will cost approximately $5 million and will provide the City with a capacity of 13.75 mgd.

The maximum capacity of the Ocean City beaches is being approached. This situation has been recognized in the Worcester County Comprehensive Plan which contained the suggestion that the northern portion of Assateague Island be used to increase the area's recreational potential. In addition, the recreational potential of the coastal bays has been strained by the large number of pleasure craft using these waters. EPA is concerned that present planning activities in the North Central Ocean Basin do not adequately address the potential adverse environmental consequences and conflicts posed by these conditions. The applicant's proposed project provides wastewater treatment capacity which will induce the secondary development capable of overburdening these critical services and resources.

ALTERNATIVES TO THE APPLICANT'S PROPOSED PROJECT

EPA has reviewed the applicant's proposed project and has concluded that several component alternatives are available for incorporation into the wastewater treatment system for the North Central Ocean Basin. Incorporation of these alternatives would either reduce the environmental impact or increase the cost effectiveness of the applicant's project.

Phasing construction of the regional collection system to immediately eliminate point source discharges and failing septic systems in West Ocean City, Berlin, and the Route 50 corridor would reduce the potential for growth inducement north of Route 50 and on Upper Sinepuxent Neck. Phasing could increase the total cost of the interceptor system through inflation, but the environmental benefits of reducing suburban sprawl and the potential for increasing the efficiency of the public investment may balance the increased costs.

The applicant's proposed pure-oxygen, activated-sludge treatment process for the expanded Ocean City STP is the most cost-effective and environmentally sound alternative available for the small site. However, EPA questions the need for the same process at the 40-acre Mainland STP site. Less costly alternatives, such as the use of trickling filters, are available and would provide the secondary treatment required by PL 92-500.

The proposed ue of ozone for effluent disinfection is neither cost-effective nor significantly more environmentally favorable than chlorination. The use of chlorine at the Ocean City STP has had no detectable adverse impact upon water quality or marine plants and animals near the outfall. Mixing and dilution of residual chlorine discharged from the proposed facilities will eliminate any adverse impact from the disinfectant.

The discharge of effluent into the Atlantic Ocean is the most cost-effective and reliable alternative available to the applicant. The discharge of primary effluent from the Ocean City STP has produced no detectable impact upon marine plants and animals or water quality near the outfall. The proposed outfall across Assateague Island will have minimal, short-term, adverse impact and no long-term impact on the island. An alternative outfall crossing southern Fenwick Island (Ocean City) would be more expensive but is a feasible alternative to the Assateague Island outfall.

EPA concurs with the applicant's decision to apply liquid sludge to the land. The first phase of that program should begin with the proposed expansion of the Ocean City STP from 9 to 12 mgd. EPA has requested that during the first phase, the applicant evaluate public acceptance of the program and the feasibility of composting the sludge from second-phase facilities.

The applicant has requested a total sewage treatment capacity of 29.4 mgd. This capacity could be reduced by deleting the interceptor system north of U.S. Route 50 from the proposed project, by using EPA's (1977) per capita flows included in the proposed cost-effectiveness guidelines, and by coordinating the predicted sewage flows in Ocean City to the projected water supply. Incorporation of these factors could reduce the total required capacity to 20.3 mgd.

Based upon information developed in this EIS, EPA believes that a modification of the applicant's alternative #4 is the most feasible available system alternative. The modification would include incorporation of the previously discussed component alternatives. Alternative #4 includes a 12 mgd STP at Ocean City and a 17.4 mgd facility on the Mainland. The Mainland facility's service area would include southern Ocean City and the regional collection system. Adoption of alternative #4 will be required because EPA will not permit the filling of 7.5 acres of wetland west of the Ocean City STP and other property adjacent to the facility is too expensive to purchase.